

## **GOLD MIS Program Final Report**

### **Context and Approach**

The Local Government Code of 1991 has set the policy environment for the information technology initiatives of local government units. The Code has given LGUs the autonomy to plan their IT direction and activities and provide the wherewithal for the implementation of that plan.

Before the Code took effect, LGUs (along with other government agencies) that have IT resource requirements were required to submit their "Information Systems Development Plans" or Information Systems Plan (ISP) to the Department of Budget and Management for approval, upon the recommendation of the National Computer Center, to serve as basis for "rationalizing the allocation of government funds for this purpose." (Memorandum Order No. 237, s. of 1989) Under NCC Memorandum Circular 90-1, LGUs were also required to submit their ISPs annually to the NCC for review and approval, without which no expenditures for IT resources would be allowed.

The Code has in effect repealed or amended these issuances. By virtue of this, LGUs have been allowed to formulate and approve their respective ISPs and allocate local resources for their implementation, subject only to the standard procedures and guidelines prescribed by pertinent national government agencies and offices. Following the Code, NCC Memorandum Circular 93-3 has confined the mandate of the NCC, insofar as its relationship to LGUs is concerned, to providing merely "advisory services in the development or implementation of information systems and use of IT."

In early 1999, however, an executive order issued by Malacanang provided for the restoration of the pre-Codal arrangement, requiring LGUs again (among other government entities) to get NCC approval for their ISPs and proposed IT expenditures. The order was subsequently rescinded upon representations from the LGU Leagues and the Information Technology Council of the Philippines.

### **LGU Approach to IT Implementation**

The policy environment has allowed LGUs to pursue strong initiatives on IT development. The surveys conducted by the NCC in 1994 and 1997, and GOLD's 1999 "Survey to Ascertain the Level of Computerization Initiatives of Local Government Units," have all indicated an increasing investment by LGUs on IT activities and items, particularly hardware and software.

In 1994, for example, per NCC's survey on the "state of local government computerization," responding LGUs had earmarked a combined total of a little less than PhP93 million for computerization, compared to only PhP23 million a year before. Hardware and productivity software were the single biggest item in the computerization budget, getting a little less than 70% of the total. The 1994 survey showed provinces and cities owning a combined average of 17 units each.

The NCC survey for 1997 indicated a dramatic increase in hardware expenditures. Computer units owned by provinces and cities combined reached an average of 32 units per LGU. And by 1999, per the GOLD survey, the computer units per LGU increased to 36 on the average.

The report of the GOLD survey for 1999 still shows the gaps in the LGU initiatives which have been observed in the earlier NCC surveys, reflecting the way with which LGUs continue to approach IT implementation. The GOLD 1999 IT survey shows, among other things, the following gaps:

- Unplanned implementation of IT initiatives, as highlighted by the lack of information systems planning (Table 8);
- Few application systems software are in use (Tables 5);
- Where application systems are in place, systems integration and connectivity are lacking (Tables 6);
- Limited use of local area networking, let alone wide area networking (Table 2); and
- Low level of technical capability or absorptive capacity, despite increasing investments on IT personnel (Tables 7-B).

The GOLD survey also shows the tendency among LGUs to outsource the development of their applications systems. Although this is not per se undesirable, it becomes a problem source due to the low technical capability to evaluate the systems software offered by vendors. In some instances, the GOLD Program found out from field visits that the proprietary systems installed are not working at all, despite the millions that the LGUs have spent for them.

Overall, therefore, the result is that increasing IT investments on hardware/software and personnel are not optimized.

### **GOLD MIS Program Approach**

The provision of GOLD technical support under the MIS Program took full notice of this LGU approach to IT, particularly the gaps just cited, and sought to assist LGUs in optimizing their investments. This would mean, among other things, supporting LGUs in their information systems planning initiative and their effort to build their in-house capability for sustainability purposes. At the same time, the Program responded to selected LGU requests for technical support in addressing local information systems problems.

As such, following the GOLD Project principle of "assisted self-reliance", Program support focused on filling the key technical needs of the LGU and attempted to build on major IT trends observed among LGUs, such as the following:

- Growing appreciation, awareness or interest by LGU management and personnel of computerization for efficient government operations.
- Increasing realization among LGUs of the need to form full-time MIS units and build the technical capability of the LGU organization on computer operations.

- Growing LGU awareness of what computerization entails in terms of budget, time and effort.
- Willingness of LGU leadership to invest on their computerization initiatives, especially in terms of hardware and software acquisition.

The Program objective captures in capsule the GOLD MIS support approach, as follows:

Support selected LGUs that demonstrate strong initiative in building their institutional and technical capabilities to develop, install, implement and maintain their own computer-based management information systems as support to the goal of putting in place an efficient, effective, and transparent processes and operations.

## **Program Support Implementation and Activities**

### **1. Demonstrating the GOLD MIS Approach in Bulacan**

The GOLD MIS Program approach was first demonstrated in the Province of Bulacan starting in May 1997 as a response to the leadership's concrete expression of keen interest in pursuing its initiative to build computer-based information systems in the Provincial Government. The Provincial leadership created practically from scratch the MIS division to start building its technical capability and absorptive capacity and procured ten compute units, complete with peripherals, to start building the infrastructure for a local area network.

The initial GOLD response was to provide technical support for the information system planning initiative of the Province, mainly to help it in "priming up" the Provincial Government organization for its computerization effort, and in organizing and setting the direction for the organization's burst of IT activities. The Bulacan Information Systems (IS) Plan, after it was completed in September 1997, served as an effective tool for achieving the MIS goals and objectives of the Province; and subsequently became a model for the IS planning initiatives of other GOLD sites, notably Negros Oriental and Bohol.

On the basis of the IS Plan, GOLD turned to supporting the newly organized MIS Division in its effort to develop the chosen priority systems. The in-house staff took sole responsibility for developing the Supplies and Materials Management Information System; while GOLD focused in supporting the development of the Personnel/Payroll Management Information System (PMIS) and the more complex Real Property Tax Information System (RPTIS). GOLD support for the development of the PMIS and RPTIS software was premised on the understanding that these will be shared for free with other interested LGUs.

The process of developing the priority application systems was also the process in which the in-house staff honed their skills and drew learnings in systems development.

## **2. Support for Inter-LGU Cooperation in Applications Systems Development: The Integrated Fund Management Information Systems for Negros Oriental, Bohol, and Nueva Vizcaya**

After completing its IS Plan with GOLD support in November 1997, the Province of Negros Oriental sought further assistance in the development of an Integrated Fund Management Information System. Since the Province followed the initial track of out-sourcing the FMIS development, GOLD assistance (under the Revenue Generation Program) was concentrated in helping the Province formulate the detailed systems specifications for the guidance of potential bidders. However, no ready-made system was available in the market, and private developers who showed initial interest in the project backed out at the last minute. The Province decided to take the other track of developing the system on its own, and sought GOLD support.

At about the same time, however, interest in adopting a similar system had been expressed by the Provinces of Bohol and Nueva Vizcaya. The three provinces agreed to jointly undertake the FMIS development, with GOLD providing technical support for the initiative basically using the same approach demonstrated in Bulacan. The key activities, which the Project provided technical assistance to, are the following:

- a) *Joint formulation of common Data Flow Diagram.* GOLD supported a workshop for the three provinces participated in by technical representatives from each of them to formulate and agree on a Data Flow Diagram, or DFD, as the first logical step to arriving at a common understanding of the system to be developed.
- b) *Conduct of training for LGU staff on the use of programming and database management tools.* At least two programmers from each of the three provinces were trained with GOLD support on the use of the programming tool for FMIS software development. Through GOLD intervention, the Philippine distributor of the database management software that will be used for FMIS agreed to provide free training to participating LGUs on network administration or any other available module.
- c) *Programming, testing and debugging of the FMIS software.* Guided by the DFD, the programmers developed the Accounting, Budget and Treasury modules of the FMIS and linked them together into an integrated system, tested the system using actual data from Negros Oriental, fixed the bugs, and commissioned the completed system in the three participating LGUs.

## **3. GOLD Extension Phase**

Eight new LGUs and six old GOLD sites availed of the support provided by the Project under this phase. Two major sets of support activities were conducted for these sites, namely: (a) Preparation of Guidebook and training on IS Plan preparation; and (b) Adoption of the chosen GOLD software.

- a) *IS Plan preparation.* In collaboration with the National Computer Center, GOLD provided technical support for the preparation of a user-friendly guidebook for LGUs on IS Plan preparation, and using the guidebook, initiated the conduct of training for representatives from the new MIS sites. The guidebook was prepared in such a way as to allow LGUs to prepare their IS Plans with minimum reliance on technical support from the outside.

- b) *Adoption of GOLD software.* Out of the total 14 LGUs, six opted to adopt the PMIS; another six, the RPTIS; and two, the FMIS. Adoption of the software includes the performance of tasks that seeks to modify (customize) the software into one that fits the specific requirements of the local system. These tasks include the following:
- Demonstration of the original software version. This is done before a group of key local officials and potential system users who are expected to critique or comment on the version based on their specific practices and knowledge of procedures and processes in the LGU;
  - Data gathering. GOLD systems analyst/programmer conducts interviews with key officials, stakeholders and users and collects sample reports and records to establish or validate specific features, procedures, routines and the like, that describe the local system. Even before this, LGUs start the process of procuring the needed hardware and the LAN operating system and database management software.
  - Designing the system. The systems analyst/programmer designs on paper the new or modified system based on the data gathered, and have this validated by the potential users.
  - Installation and users training. The operating system, database management system and the original version of the application system are installed in the LGU-assigned server. Users are familiarized with the commands and functioning of the system; users training and data buildup begin.
  - Customization. Armed with the knowledge of what to modify or change or add in the original program, the systems analyst/programmer starts customizing the software.
  - First parallel run and users acceptance testing. Using data entries from the data buildup activities, the customized system is made to "run parallel" with the manual system, and key officials, stakeholders and users are asked to evaluate or assess its features, failures and functioning for the first time. The "run" is also expected to bring to light some bugs in the modified system.
  - Customization and application of fixes. The system is modified again, taking into full account the users' critique and results yielded by parallel running and testing.
  - Repeat of the cycle, if necessary. The cycle of parallel running and testing and customization and fixing is repeated until key officials and users finally accept the system.
  - Fine tuning and sign off. The LGU accepts the modified system and commits to finish the data buildup until the system is fully running.

## Key Results and Impact

Overall, GOLD MIS support has helped the LGU sites in rationalizing their computerization initiatives and building their capabilities in sustaining them. The sites have been in various stages of formulating their I.S. Plans, organizing their in-house MIS staff, setting up their respective local area networks, and building the database for their adopted application system. All LGU sites have expressed interest in adopting the other GOLD software and paying for the cost of customization themselves.

### The Bulacan Experience

From being essentially an IT backwater only three years ago, the Province of Bulacan has emerged as one of the most advanced among LGUs in terms of MIS development, winning for itself the Galing Pook Award 2000. GOLD's role is in providing purely technical support for the efforts of the Province, which finds, however, a good host in the strong will and innovative qualities of the Provincial leadership in pursuing its MIS goals. The Provincial MIS initiatives have even gone beyond the confines of the Capitol by reaching out to the component municipalities and helping them follow the provincial lead. The province, for example, is now on its way to building the wide area network to link pilot municipalities for its Real Property Tax Information System.

The following table, prepared by the Provincial Government staff for the Galing Pook Award evaluators, summarizes the benefits derived from computerization in terms of increased productivity and efficiency.

*Personnel/Payroll Management Information System.* Maintains systematic files of employees, computerized processing of salaries and remittances, and allows for salary withdrawal using Automatic Teller Machine (ATM) cards.

Process	Without PMIS	With PMIS	Benefit/Improvement
Payroll Preparation	Done by 26 Admin. Staff of all Departments /Divisions	Done by 4 personnel	22 personnel less (84%) Estimated Annual Savings in Salaries is P 2.5M
Processing Time in the Preparing of Service Records	Done 20 minutes	Done in 15 seconds	A 19.75-minute improvement (98.75%)
Processing Time in Determining Leave Credits	Done in 5 minutes	Done in 30 seconds	A 4.5-minute improvement (90%)
Processing Time in Preparing Remittances (GSIS, PAG-IBIG, MEDICARE)	Done in 5 days	Done in 4 hours	A 4.5-day improvement (90%)
Processing Time in Preparing Pay slips (1752 employees)	Done in 5 days	Done in 4 hours	A 4.5-day improvement (90%)
Processing Time in Preparing Alpha List	Done in 5 days	Done in 30 minutes	A 5-day improvement (98.75%)
Processing Time in Preparing BIR Form 2316	Done in 25 days	Done in 3 days	A 22-day improvement (88%)
Processing Time in Preparing Employee Masterlist	Done in 8 hours	Done in 30 minutes	A 7.5-hour improvement (93.75%)

*Real Property Tax Information System.* Facilitates assessment and appraisal, billing and collection of real property tax, as well as tax enforcement capabilities (Based on actual test)

Process	Without RPTIS	With RPTIS	Benefit
Processing of simple Real Property Unit (RPU)	Done in 30 minutes (average)	Done in 2 minutes (average)	A 28-minute improvement (93%)
General Revision	All documents are reviewed again for re-assessment	Just input new schedule of base unit value, then every property information will be automatically updated.	Can reduce <u>100%</u> of manpower doing revised FAAS  An Average of 10 personnel each municipality
Production capacity to produce documents to support decision making	Prepared in 1 month	Capable of support assessment and appraisal. Tax bills and notices of delinquencies for the whole municipality can be mass produced automatically in <u>one day</u>	A month improvement

## Joint Development of the FMIS

GOLD support yielded the following key results:

- Development of the first-ever integrated FMIS software that allows for an efficient, effective and transparent processes in local accounting, budgeting and treasury operations;
- Installation and commissioning of the software in the three participating LGUs.

By the very features of the system, the impact could be felt by the organization in terms of increased productivity, although this could be more adequately established after some time from the date the system was installed. System features remove redundancy; take over repetitive tasks; ensure accuracy; establish accountability by securing access to records; and allow for

- ✓ faster report generation,
- ✓ quick, on-line access to records,
- ✓ sharing of resources,
- ✓ monitoring of transactions, and
- ✓ quick processing.

Overall, therefore, one other major result is transparency in financial operations. In technological terms, the system demonstrates concretely the benefits derived from networking and integration.

## Adoption of the GOLD Software

The installation of the GOLD software initiates the LGUs into the world of application systems, connectivity and networking, where computer capacity is optimized beyond serving as "glorified typewriters". It leads LGUs into recognizing IT as a tool for efficient and effective governance.

At the end of the MIS Program support, the PMIS has been customized and installed in six (6) LGU sites; the RPTIS in five (5) LGU sites; and the FMIS in one LGU site other than the three original LGUs.

With GOLD technical support, LGU site efforts have also resulted in the following:

- Training on Information Systems Planning for personnel from all the new MIS sites;
- Organization and training of the in-house staff in each of the new MIS sites to implement the LGU's MIS program.
- Procurement of the needed computer hardware and software and setting up of the local area network.
- Forging links between the new sites and Bulacan and Negros Oriental to facilitate the new LGU sites's access to the other application systems.

### **Constraints and Difficulties**

MIS program support faced some constraints and difficulties that helped in delaying or holding up project implementation, among which are the following:

- Initial difficulty in getting good systems analysts/programmers who were familiar with the development language used for the GOLD software and who are committed enough to work hard for the success of the project.
- Difficulty in getting cooperation from local personnel who were apprehensive about the transparency features of the GOLD software. Resolved through local organizational measures and the determination of LGU leadership.
- Inertia in some LGU sites on data build-up requirements, which had delayed the testing and debugging of the adopted GOLD system. Resolved by making the completion of the data buildup as a precondition for the consultant's next site visit.
- Slow hardware and software procurement process in some LGU sites. This issue was unresolved because this requires a needed amendment to standard procurement procedures that are centrally prescribed.
- Key LGU officials giving in to kickback offers made by vendors for the purchase of IT hardware and software at exorbitant prices.

### **Sustainability Of GOLD MIS Initiatives**

The MIS Program has taken measures to ensure that GOLD and LGU initiatives are sustained even beyond the life of the Project. Some of these measures are tucked in with the GOLD MIS approach itself, such as the training on information systems planning and the production of the user-friendly guidebook to allow LGUs formulate their own Plans. The Program has also seen to it that in-house MIS staffs, if not a full-fledged office, have been organized to manage IT initiatives in several LGUs.

The Field Directorate Office of the National Computer Center, with whom the Program collaborated on the formulation of the ISP preparation guidebook, enjoys the mandate to provide further training and advisory services to LGUs on information systems planning and other information systems or IT- related concerns. The NCC agreed to make the guidebook available to LGUs upon request.

Notices have been conveyed to the respective Executive Boards of the League of Provinces and League of Cities to inform them that the GOLD software would be available to any interested LGU upon request, so long as they are interested to pay for the needed hardware and software and the cost of customization. Towards the close of the Project, the League of Cities has responded by forming a technical working group to come up with the mechanism on how its members could access the free GOLD software. In relation to this, the GOLD MIS systems analysts and programmers have organized themselves formally into an entrepreneurial group to provide support to any LGU that wants the GOLD software customized to fit its requirements.

### **Conclusion and Recommendations**

The MIS Program approach to supporting the IT initiatives of LGUs has attempted to build on the growing IT interests of the LGU and their increasing investments in the IT area. This is in keeping with the GOLD principle of "assisted self-reliance." The goal is to help LGUs define the direction of their IT interests and activities, optimize their investments, and sustain their initiatives for the long term. To a fair degree, that goal has been achieved in most of the LGU sites. On top of this, Program support has also produced some concrete results, largely in the area of software development and adoption for selected mission-critical systems.

In achieving these modest gains, Program support worked from certain premises that guided its activities, which include the following lessons:

- *People define the system.* A system, by textbook definition, is composed of at least three elements: equipment, procedures and people. When equipment and procedures are already in place, people ultimately decide if the system will work or fail. People are the leaders, the stakeholders, the users - all of whom should be identified and involved to make the system work.
- *IT is not a cure-all.* IT by itself cannot change everything. It cannot change attitudes, nor can it change organizational culture and values. A value system, for example, that allows a clerk to perennially forget the manual posting of tax payments to the account register, will also allow that clerk to perennially forget the encoding of tax receipts in a batch mode. In that sense, however, IT is a good driver for change, particularly by bringing to light certain strengths and weaknesses of an organization, both in technological and holistic terms. And these require other interventions that are not necessarily IT.
- *IT is not the end-all and be-all.* IT itself is not the objective, it's just the means. As such, it presupposes a clearly defined development objective that it is made to serve. A MIS program success is not defined by the latest hardware or software bought, or the development of the LGU web site, or the installation of another application system. It is defined by how well it has helped in achieving the goals of good governance.

- *The intangibles count in the benefits equation.* An evaluation of IT benefits should include not only a measurement of the quantifiable benefits (e.g., cost reduced, revenues earned), but the intangibles as well (like, service quality, must fit with the development objective). Since LGUs are basically service organizations, the latter is an intrinsic factor to consider in making and evaluating an IT investment decision.

GOLD support has been for LGUs who can afford the hardware and software costs. The reality is that most LGUs can only afford it at the expense of their service delivery functions. The terms, "haves" and "have nots", describe LGUs as well; and IT serves to highlight the gap between them. Future technical assistance should look into ways of how support organizations can help in addressing this emerging "digital divide".

## Appendix 1

### List of Local Government Units Supported by the MIS Program Under the GOLD Project

LGU	Initiative
<b>Old Sites</b>	
1. Province of Bulacan	Information System Planning; Development of the Personnel/Payroll Management Information System (PMIS) and Real Property Tax Information System (RPTIS); Adoption of the Fund Management Information System (FMIS)
2. Province of Bohol	Information System Planning (under the Revenue Management Program); Adoption of the RPTIS and the FMIS
3. Province of Capiz	Training on IS Plan preparation; Adoption of the RPTIS (in synergy with the Revenue Management Program)
4. Province Negros Oriental	Information System Planning (under the Revenue Management Program); Development of the FMIS
5. Province of Nueva Vizcaya	Adoption of the FMIS
6. Province of Palawan	Adoption of the RPTIS (in synergy with the Revenue Mobilization Program)
<b>New Sites</b>	
7. Province of La Union	Training on IS Plan preparation; Adoption of the PMIS.
8. City of San Fernando	Training on IS Plan Preparation; Adoption of the PMIS.
9. Municipality of Moncada, Tarlac Province	Training on IS Plan Preparation; Adoption of the PMIS
10. Province of Bataan	Adoption of the RPTIS (in synergy with the Revenue Mobilization Program)
11. Province of Laguna	Training on IS Plan Preparation; Adoption of the PMIS
12. Province of Quezon	Training on IS Plan Preparation; Adoption of the PMIS
13. Municipality of Pateros	Training on IS Plan preparation; Adoption of the RPTIS
14. Municipality of Sibulan, Negros Oriental	Adoption of the RPTIS (in synergy with the Revenue Mobilization Program)
15. Province of Misamis Oriental	Training on IS Plan Preparation; Adoption of the PMIS

## **Appendix 2**

- **MIS Program Institutional Partner**

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- **Publications**

1. "Guidebook on Information Systems Planning for LGUs"  
c/o Director Maria Teresa Camba, NCC
2. "Report of the Survey to Ascertain the Level of Computerization Initiatives of LGUs"  
c/o League of Cities of the Philippines; League of Provinces of the Philippines

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